UNEX and Missions of Opportunity
Scientific and Technical Evaluation

Evaluation of Scientific and Technical Merit

- Overview of Science Peer Review Process
- Science Requirements
- Evaluation Criteria
  - Scientific Merit
  - Technical Merit and Feasibility

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Review Process

- Proposals received and screened for compliance with the AO
- Proposals assigned to Discipline Scientists based upon Science Theme designation
- Scientific/Technical Peer Panels formed
  - Expertise in the scientific topic areas and science instrumentation
  - Avoidance of conflict of interest
- Proposals reviewed in depth for scientific merit and technical merit/feasibility by the assigned panels
  - Major/Minor Strengths and Weaknesses identified and recorded
  - Evaluation Criteria assigned an adjectival rating (Excellent, Very Good, Good, Fair, Poor)

- Proposals categorized based upon science peer panel evaluations

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Science Requirements
(AO Sections 3.2 and 5.3)

- Proposal must contain:
- Clear statement of the relationship between the scientific objectives, anticipated data, and instrument payload
- Data analysis plan*, including appropriate period for science analysis independent of archiving activities and specification of time required to place appropriate (validated/calibrated) data in the public domain (justify minimum time necessary)
- Science Team Responsibilities:
  - Collection of scientific, engineering, and ancillary information necessary for validation and calibration of scientific data
  - Initial preparation and analysis of data, delivery to an appropriate data repository, publication of scientific findings, and communication of results to the public

- Appendix B provides guidelines for suggested items to be addressed in science section of proposal

* Mission of Opportunity investigation team’s data analysis responsibilities defined by mission sponsor

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Evaluation Criteria: Scientific Merit
(AO Section 7.2.1)

- To evaluate the *Scientific Merit* of the Proposed Investigation*, the following factors will be considered:
  - *Impact of the investigation on Space Science, particularly on the goals of the U.S. Space science program (see Section 2.1 of the AO)*
  - *Degree to which the proposed investigation fills gaps in our present understanding of Space Science*
  - *Extent to which the proposed investigation provides fundamental scientific progress in the applicable Space Science theme(s)*
  - *Adequacy of the anticipated data to complete the proposed investigation*

- *Degree to which the proposed investigation supports/complements other Space Science missions and provides other ancillary benefits to the U.S. Space Science program*

* For Missions of Opportunity, the proposed investigation encompasses only the contribution to the mission, not the entire mission

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Evaluation Criteria: Technical Merit/Feasibility
(AO Section 7.2.2)

- To evaluate the *Technical Merit and Feasibility* of the Proposed Investigation, the following factors will be considered:
  - *Degree to which the proposed instrument(s) can be built using the proposed technologies*
  - *Likelihood of success of any proposed new technological approach*
  - *Extent to which the proposed instrument(s) and mission will provide the required data*
  - *Merit of the proposed data analysis and archiving plan and timeliness of release of data to the public domain*
  - *Probability of success of the proposed investigation, based upon:*
    - *Experience, expertise, and organizational structure of the science team*

- *Technical risk associated with overall mission design and instrument set*